

1 SPINNER TAIL PIPE ORNAMENT & METHOD

2
3 INCORPORATION BY REFERENCE

4
5 The inventor incorporates herein by reference any and all U. S.
6 patents, U. S. patent applications, and other documents cited or
7 referred to in this application or cited or referred to in the U. S. patents
8 and U. S. patent applications incorporated herein by reference.

9
10 DEFINITIONS

11
12 The words "comprising," "having," "containing," and "including,"
13 and other forms thereof, are intended to be equivalent in meaning and
14 be open ended in that an item or items following any one of these
15 words is not meant to be an exhaustive listing of such item or items, or
16 meant to be limited to only the listed item or items.

17 "Rectangular-shape" includes square-shape.

18
19 BACKGROUND OF INVENTION

20
21 Automotive accessories are sold to consumers who desire to
22 customize their automotive vehicles. One such accessory is a chrome-
23 plated tail pipe. The standard tail pipe is removed and the chrome-
24 plated tail pipe is attached usually by welding it to the outlet of the
25 muffler of the exhaust system. These tail pipes come in a wide variety
26 of configurations, some of which have dual outlets and others have an
27 outer end cut at an acute angle. The 2002 through 2003 (Volume 3)
28 DT Sports catalogue discloses examples of such custom tail pipes
29 distributed by Different Trends, LLC of Buena Park, California.

1
2 SUMMARY OF INVENTION
3

4 This invention has one or more features as discussed
5 subsequently herein. After reading the following section entitled
6 DETAILED DESCRIPTION OF SOME EMBODIMENTS OF THIS INVENTION,"
7 one will understand how the features of this invention provide its
8 benefits. The benefits of this invention include, but are not limited to:
9 a novel ornamental addition to custom tail pipes that appeals to many
10 consumers, ease of installation, low cost manufacture, and enhanced
11 appearance of tail pipes.

12 Without limiting the scope of this invention as expressed by the
13 claims that follow, some, but not necessarily all, of its features are:

14 One feature of this invention is that it comprises a tail pipe
15 ornament including an ornamental element at or near the exposed
16 open end of a tail pipe from which exhaust gas exits the vehicle. The
17 tail pipe ornament of this invention may be a sleeve that is adapted to
18 be connected to the exposed open end of the tail pipe and includes the
19 ornamental element, or it may be a standard tail pipe that is modified
20 to include the ornamental element. In either case, the ornamental
21 element includes a symbol. It is this symbol that appeals to the
22 consumer, and it may take many different forms. It may be, for
23 example, in the form of letters, numbers, any ornamental shape, or
24 combinations thereof.

25 Two, the ornamental element is mounted to rotate. It may be a
26 vane device including a support member such as a plate bearing the
27 symbol or a plate in the shape of a symbol. For example, the
28 ornamental element may be a solid plate in the shape of a symbol or a
29 solid plate with a symbol painted or otherwise imposed thereon. An

1 ornamental element may have at least a portion that is light reflective.
2 For example, the portion that is light reflective may correspond to the
3 symbol.

4 Three, the ornamental element is sized to provide sufficient space
5 to allow exhaust gas to exit the exposed open end of the tail pipe
6 without substantially impeding gas flow. Typically, the exposed open
7 end of the tail pipe has a maximum total area and the ornamental
8 element occupies no more than about 90 percent of this maximum
9 total area. For example, the maximum total area may be from about 8
10 to 20 about square inches. When the ornamental element occupies no
11 more than about 90 percent of this maximum total area, the exhaust
12 gas flows past the ornamental element unimpeded but with sufficient
13 force to impinge against the ornamental element causing it to rotate.

14 Four, a tubular member or sleeve may be employed. When this
15 invention comprises a modification of a standard tail pipe, this
16 standard pipe includes a tubular member. When this invention
17 comprises an ornament adapted to be connected to the exposed open
18 end of a standard tail pipe, it includes a sleeve that is connected to the
19 exposed open end of the tail pipe either fitted over this end or pushed
20 into this end. Both the tubular member of the standard tail pipe and
21 the sleeve have a longitudinal axis and provide a passageway extending
22 between the exposed open end and an inner end in communication
23 with the exhaust system of the vehicle. The exhaust gas flows between
24 the inner end and the exposed open end through the passageway. The
25 tubular member, sleeve, and ornamental element may be made of
26 stainless steel and may be chrome plated. In one embodiment, the
27 ornamental element is made of a heat resistant material such as
28 titanium or a plastic with a high melting or softening point.

29 Five, in the embodiment including a sleeve to be connected to the

1 exposed open end of the tail pipe, the tubular sleeve comprises a wall
2 member having a configuration substantially the same as the
3 configuration of the exposed end of the tail pipe. Whether the sleeve
4 fits over or is inserted into the exposed open end of the tail pipe, it fits
5 snug therewith. The exposed open end of the tail pipe and an adjacent
6 internal hollow body portion are usually of substantially the same
7 configuration. In the embodiment where the sleeve is inserted into this
8 exposed open end, the sleeve has a wall member with an external
9 configuration substantially the same as the internal configuration of
10 the open outer end and adjacent internal hollow body portion of the
11 tail pipe. Consequently, the sleeve, upon being inserted into the open
12 outer end and adjacent internal hollow body portion, fits snug within
13 the tail pipe, with the sleeve's and tail pipe's respective longitudinal
14 axes being coextensive. When the sleeve is fitted over the exposed,
15 open end of the tail pipe, the sleeve has a wall member with an internal
16 configuration substantially the same as the external configuration of
17 the open outer end. A widely used sleeve configuration is cylindrical,
18 although it may have other shapes such as, for example, oval,
19 rectangular, hexagonal, etc. Typically, a cylindrical sleeve comprises a
20 substantially cylindrical wall member having an inside diameter from
21 about 2 to about 7 inches, a length from about 1/4 to about 6 inches,
22 and a thickness from about 1/8 to about 1/2 inches.

23 Six, the ornamental element may have a support member with
24 opposed ends, each end providing a connector arms extending
25 outwardly in substantially opposed directions from the body member
26 of the ornamental element. Each arm has a terminal end attached to
27 an inner surface portion of the tubular member or sleeve, as the case
28 may be. In one embodiment, each opposed end is spaced substantially
29 the same distance from an inner surface portion of the tubular member

1 or sleeve, as the case may be. This arrangement may be employed
2 when the outer end of the sleeve or tubular member lies in a plane that
3 is at substantially a right angle with respect to the longitudinal axis.
4 The outer end of the tubular member or the sleeve, however, may lie in
5 a plane that is at an acute angle with respect to its longitudinal axis.
6 For example, the acute angle may be from about 35 to about 85
7 degrees, typically about 45 degrees.

8 Seven, it is desirable, but not absolutely necessary, to include a
9 fastener element that enables the tail pipe ornament to be connected to
10 the tail pipe in a fixed position relative to the tail pipe. This fastener
11 element may be between the ornamental element and an inner end of
12 the sleeve. Alternately, a snap-on type connection may be used, or
13 even spot welding to hold the sleeve in a fixed position relative to the
14 tail pipe.

15 These features are not listed in any rank order nor is this list
16 intended to be exhaustive.

17 This invention also includes a method of decorating a tail pipe of
18 an automotive exhaust system where the tail pipe has a passageway
19 through which exhaust gas flows and exits an exposed, open end of the
20 tail pipe. This method comprises connecting to the tail pipe at or near
21 the exposed, open end of the tail pipe an ornamental element including
22 a symbol. The ornamental element is mounted to rotate. The ornament
23 element is positioned so that an observer when looking at the exposed,
24 open end of the tail pipe would see the symbol. The ornamental
25 element may be constructed as discussed above and it may be integral
26 with a tail pipe or it may be a separate component mounted to rotate
27 within a sleeve adapted to be attached to the tail pipe as discussed
28 above.

DESCRIPTION OF DRAWING

Some embodiments of this invention, illustrating all its features, will now be discussed in detail. These embodiments depict the novel and non-obvious spinner tail pipe ornament and method of this invention as shown in the accompanying drawing, which is for illustrative purposes only. This drawing includes the following figures (Figs.), with like numerals indicating like parts:

Fig. 1 is a an exploded perspective view of one embodiment of the tail pipe ornament of this invention having a spinner ornamental element mounted to rotate within a sleeve adapted to be inserted into an exposed, open end of a tail pipe of an automotive exhaust system.

Fig. 1A is a perspective view showing the tail pipe ornament depicted in Fig. 1 inserted into the tail pipe of an automotive exhaust system.

Fig. 1B is a cross-sectional view taken along line 1B-1B of Fig. 1A.

Fig. 2 is an exploded perspective view of the ornamental element including a solid support member bearing a symbol.

Fig. 2A is a perspective view of one plate member of the support member shown in Fig. 2.

Fig. 2B is a perspective view of the other plate member of the support member shown in Fig. 2.

Fig. 3 is a perspective view of a rod used to hold the plate members shown in Figs. 2A and 2B.

Fig. 4 is a cross-sectional view taken along line 4-4 of Fig. 3.

Fig. 5 is a fragmentary section view taken along line 5 of Fig. 1B.

Fig. 6 is a plan view of the spinner ornamental element of this invention shown in Fig. 2.

1 Fig. 6A is a plan view of an alternate embodiment of the spinner
2 ornamental element.

3 Fig. 7 is a side view with sections broken away depicting an
4 alternate embodiment of this invention where a tail pipe adapted to be
5 attached to an automotive exhaust system has an ornamental element
6 mounted to rotate within the tail pipe.

7 Fig. 8A depicts a series of ornamental elements in the form of
8 numbers as solid plates used in connection with the tail pipe ornament
9 of this invention.

10 Fig. 8B depicts a series of ornamental elements in the form of
11 Roman letters as solid plates used in connection with the tail pipe
12 ornament of this invention.

13 Fig. 8C depicts a series of ornamental elements in the form of
14 Roman numerals as solid plates used in connection with the tail pipe
15 ornament of this invention.

16
17 DETAILED DESCRIPTION OF SOME EMBODIMENTS OF THIS INVENTION
18

19 As shown in Figs. 1, 1A and 1B, one embodiment of this invention
20 a tail pipe ornament 10, includes a sleeve 12 adapted to fit snug within
21 a tail pipe 14 of an automotive exhaust system. The sleeve 12
22 comprises a substantially cylindrical wall member 12a having an inside
23 diameter d (Fig. 1B) from 2 to 7 inches, a length l (Fig. 1) from 1/4 to 6
24 inches, and a thickness t (Fig. 1B) from 1/8 to 1/2 inches. It has a
25 longitudinal passageway 16 extending between an open outer end 18
26 and an open inner end 20. A spinner ornamental element 22 is located
27 at or near the outer end 18.

28 As discussed subsequently in greater detail, the ornamental
29 element 22 is centrally mounted in the open outer end 18 to rotate.

Exhaust gas impinges against the ornamental element 22 causing it to turn. The ornamental element 22 may be a substantially solid structure, although openings therein are acceptable provided exhaust gas does not simply flow through the ornamental element 22 without rotating it. A fastener 19 (Fig. 1B) located between the ornamental element 22 and the inner end 20, usually adjacent this inner end, enables the tail pipe ornament 10 to be connected to the tail pipe 14 in a fixed position relative to the tail pipe. This fastener 19 includes a nut 40a welded to an inner surface portion S of the sleeve 12. A hole 30 is drilled, or otherwise formed, in the sleeve 12 at a distance D from the outer end 18 opposite the nut 40a so that a bolt 40 (Fig. 1B) may be threaded into the nut 40a.

The sleeve 12 and ornamental element 22 may be made of stainless steel and may be chrome plated. Optionally, the ornamental element 22 may be painted with a light reflective material or have a symbol thereon that is light reflective. For example, the numeral 9 is painted on the ornamental element 22 and this paint may be light reflective. As depicted in Figs. 1A, 1B, and 3, the ornamental element 22 includes a rod 22a that is at a right angle to the longitudinal axis X of the sleeve 12. As best shown in Figs. 3 and 4, the rod 22a has intersecting longitudinal slits forming a cross-shaped slot 72 extending from one end 72a of the rod 22a to near the opposed end 72b of the rod. The slot 72 does not extend all the way to the end 72b. As illustrated in Fig. 5, each end 72a and 72b of the rod 22a extends into one of a pair of aligned, enlarged apertures 78 (only one shown in Fig. 5) in the sleeve 12. Fitting snug within each aperture 78 is a bushing 74 that carries a roller or ball bearing 76 through which a portion of the rod 22a extends. This type of mounting for the ornamental element 22 enables it to rotate freely either clockwise or counter-

1 clockwise solely under the influence of exhaust gas impinging against
2 the ornamental element.

3 In the one embodiment of this invention depicted in Figs. 2
4 through 4, the ornamental element 22 is a vane device comprising a
5 pair of solid, plates 60 and 62 connected in a fashion so that when
6 viewed from the top as illustrated in Fig. 6 have a configuration of a
7 swastika. In another embodiment shown in Fig. 6A, it is a vane device
8 comprising a pair of substantially rectangular-shaped plates 60a and
9 62a are connected in a fashion so that when viewed from the top as
10 illustrated in Fig. 6A they have a configuration of the letter X or a
11 cross- shape.

12 As best depicted in Figs. 2A and 2B, the plates 60 and 62 each,
13 respectively, have a substantially rectangular-shaped face F1 and F2. A
14 symbol, for example, the numeral 9, is on the faces F1 and F2. The
15 plates 60 and 62 each, respectively, have a slit 64 and 66 along a
16 central longitudinal axis that starts at edges 64a and 66a, respectively
17 of the plates 60 and 62, and terminates at or near a center 64b and
18 66b, respectively of the plates 60 and 62. A pair of opposed edges 68a
19 and 68b of the plate 60 are bent in opposite directions at about 90°
20 with respect to the face F1 and a pair of opposed edges 70a and 70b of
21 the plate 62 are bent in opposite directions at about 90° with respect to
22 the face F1. In the embodiment shown in Fig. 4, the opposed edges of
23 the plates are not bent.

24 To form the ornamental element 22, the plates 60 and 62 are
25 connected by first aligning their respective slits 64 and 66 and, with
26 the plates at right angles to each other, pushing the plates together.
27 This assembly of plates 60 and 62 is then positioned with the plates
28 next to the end 72a of the rod 22a and aligned with the cross-shaped
29 slot 72. The assembly of plates 60 and 62 is then pushed into the slot

72 until the assembly abuts the bottom of the slot. The center of the assembly of plates at least approximately coincides with the center of the rod 22a. The ends 72a and 72b of the rod 22a provide mounting arms of about equal length. When these ends 72a and 72b of the rod 22a are connected to the sleeve 12 as discussed above, the plates 60 and 62 are held firmly in place. When the exhaust gas strikes the ornamental element 22 causing it to rotate, an optical effect is produced. The numeral 9, or other symbol, on the plates 60 and 62, appears to flicker as different segments of the symbol on these two separate plates keep changing positions with the rotation of the ornamental element 22. This is a highly desirable feature of this invention that appeals to users.

The spinner ornamental element may take many different shapes, for example, such as depicted in Figs. 8A, 8B, and 8C. It is sized to provide sufficient space to allow exhaust gas to flow through the passageway 16 in the sleeve 12, entering the inner end 20 and then flowing past the ornamental element 22, exiting the outer end 18. Usually, the outer end 18 has a maximum total area from 8 to 20 square inches and the ornamental element 22 occupies no more than about 90 percent of this maximum total area. The sleeve 12 has a configuration substantially the same as the exposed, open-end 14a of the tail pipe 14. In this embodiment the sleeve 12 is cylindrical, but it may have other shapes with different cross-sectional configurations, such as, for example, rectangular, square, oval, hexagonal, etc. depending on the shape of the exposed, open-end 14a of the tail pipe 14.

The tail pipe ornament 10 is configured to fit snugly into the open outer end 14a and adjacent an internal hollow body portion 14b of the tail pipe 14 into which it is inserted. In other words, the tail

1 pipe ornament 10 has an external configuration that is substantially
2 the same as the internal configuration of the open outer end 14a and
3 adjacent internal hollow body portion 14b of the tail pipe 14.

4 In use, a hole 50 is first drilled, or otherwise formed, in the tail
5 pipe 14. The distance of this hole 50 from the exposed end 14a of the
6 tail pipe 14 is equal to the distance D from the outer end 18 of the
7 sleeve 12 to the hole 30 in the sleeve. Thus, as shown in Fig. 3, with
8 the sleeve 12 fitting snug within the tail pipe 14, and the edge 18a of
9 the open outer end 18 substantially flush with the edge 14b of the tail
10 pipe 14, the holes 30 and 50 are aligned. The stem 40b of the bolt 40 is
11 then passed through the holes 30 and 50 and screwed into the nut 40a
12 to hold the tail pipe ornament 10 securely in position with the
13 longitudinal axis X of the sleeve 12 co-extensive with the longitudinal
14 axis Y of the tail pipe 14. A sufficiently tight fit between the sleeve 12
15 of the tail pipe ornament 10 and the tail pipe 14 may eliminate the
16 need for the fastener 19.

17 In the embodiment shown in Fig. 7, an ornamental element 98 is
18 mounted to rotate in a tubular tail pipe 100 through which exhaust gas
19 flows to turn the ornamental element 98. This ornamental element 98
20 is substantially identical to the ornamental element 22 except it is
21 mounted to rotated within the tail pipe 100, thereby eliminating the
22 sleeve 12. Consequently, the opposed ends 72a and 72b of the rod
23 22a, bushing 74, and bearing 76 of the ornamental element 98 are
24 installed in opposed and aligned apertures 102a and 102b in the tail
25 pipe 100. The end of the tail pipe is an acute angle to the pipe
26 longitudinal axis X1, but this is an optional feature. The tail pipe 100
27 may be an enlarged member that has one or more spinner ornamental
28 elements mounted within it.

29 The ornamental elements discussed above, including their

1 associated rods 22a and plates 60, 60a and 62, 62a have a height from
2 about 2 to about 7 inches and a width from about 2 to about 7
3 inch. Their plates 60, 60a and 62, 62a are mainly planar, relatively
4 thin, having a thickness that does not exceed about 1/4 inch, for
5 example, from about 1/16 to about 1/4 inch. The rods 22a have a
6 length that is slightly (about 1/4 inch) greater than the inside diameter
7 of the sleeve 12 or tail pipe 100, as the case may be, and a diameter
8 from about 1/16 to about 1/8. The bodies of the ornamental elements
9 discussed above may be solid. They may be, for example, Roman
10 letters as shown in Fig. 8B, or Arabic numerals as shown in Fig. 8A, or
11 Roman numerals as shown in Fig. 8C. They may be other symbols also,
12 for example, Chinese, Hebrew, Arabic, Greek, Russian, or Sanskrit
13 characters; signs of the Zodiac; standard ornamental shapes such as,
14 for example, a heart, diamond, club, spade; trademark logos; etc. It
15 may be desirable to chrome plate the entire structure of the
16 ornamental elements.

17 18 SCOPE OF THE INVENTION 19

20 The above presents a description of the best mode contemplated
21 of carrying out the present invention, and of the manner and process
22 of making and using it, in such full, clear, concise, and exact terms as
23 to enable any person skilled in the art to which it pertains to make and
24 use this invention. This invention is, however, susceptible to
25 modifications and alternate constructions from that discussed above
26 which are fully equivalent. Consequently, it is not the intention to
27 limit this invention to the particular embodiments disclosed. On the
28 contrary, the intention is to cover all modifications and alternate
29 constructions coming within the spirit and scope of the invention as

1 generally expressed by the following claims, which particularly point
2 out and distinctly claim the subject matter of the invention:
3